TABLE II

INCREMENTAL EFFECTS OF SELECTED TAX POLICY CHANGES
ON THE VALUE OF A RESIDENTIAL RENTAL PROPERTY

BASIC ASSUMPTIONS:			
Price	$7,447,345	Capitalization Rate	8.7%
Land Value As Percent of Price	15.0%	Initial Annual Operating Costs	$665,855
Furniture and Fixtures As Percent of Price	5.0%	Initial Annual Rents	$1,313,774
Structure As Percent of Price	80.0%	Growth Rate of Operating Costs and Rents	4.0%
Downpayment As Percent of Price	10.0%	Inflation	4.0%
Interest Rate	10.0%		

SIMULATION I: ASSUMING 28 PERCENT MARGINAL INCOME TAX RATE

Case	Cumulative Changes to 1990 Tax Law and Basic Assumptions	Before Tax Internal Rate of Return (IRR)	Projected After-Tax Internal Rate of Return (A/T IRR)	Present Value of Residential Rental Property Required to Yield A/T IRR Under 1990 Tax Law	Cumulative Change in Present Value of Residential Rental Property to Yield A/T IRR Under 1990 Tax Law
1	No Change	19.20%	16.20%	$7,447,345	0.00%
2	Passive Loss Restrictions Removed	19.20%	18.90%	$7,760,000	4.20%
3	20 Percent Top Capital Gains Tax Rate	19.20%	20.00%	$7,906,000	6.16%
4	Pre-1986 Depreciation Rule	19.20%	23.80%	$8,250,000	10.78%
5	Cap. Rate Falls from 8.7% to 8.2%	19.20%	24.30%	$8,330,000	11.85%

SIMULATION II: ASSUMING 32 PERCENT MARGINAL INCOME TAX RATE

Case	Cumulative Changes to 1990 Tax Law and Basic Assumptions	Before Tax Internal Rate of Return (IRR)	Projected After-Tax Internal Rate of Return (A/T IRR)	Present Value of Residential Rental Property Required to Yield A/T IRR Under 1990 Tax Law	Cumulative Change in Present Value of Residential Rental Property to Yield A/T IRR Under 1990 Tax Law
1	No Change	19.20%	16.20%	$7,447,345	0.00%
2	Passive Loss Restrictions Removed	19.20%	19.30%	$7,810,030	4.87%
3	20 Percent Top Capital Gains Tax Rate	19.20%	20.60%	$7,980,000	7.15%
4	Pre-1986 Depreciation Rule	19.20%	25.21%	$8,410,000	12.93%
5	Cap. Rate Falls from 8.7% to 8.2%	19.20%	26.51%	$8,610,000	15.60%

SIMULATION III: ASSUMING 34 PERCENT MARGINAL INCOME TAX RATE

Case	Cumulative Changes to 1990 Tax Law and Basic Assumptions	Before Tax Internal Rate of Return (IRR)	Projected After-Internal Rate of Return (A/T IRR)	Present Value of Residential Rental Property Required to Yield A/T IRR Under 1990 Tax Law	Cumulative Change in Present Value of Residential Rental Property to Yield A/T IRR Under 1990 Tax Law
1	No Change	19.20%	15.50%	$7,447,345	0.00%
2	Passive Loss Restrictions Removed	19.20%	18.80%	$7,830,000	5.14%
3	20 Percent Top Capital Gains Tax Rate	19.20%	20.90%	$8,120,000	9.03%
4	Pre-1986 Depreciation Rule	19.20%	26.00%	$8,570,000	15.10%
5	Cap. Rate Falls from 8.7% to 8.2%	19.20%	27.30%	$8,800,000	18.20%

Simulation results derived using planEASe Economic Analysis System.

Summary and Conclusions

This study simulated the impact of TRA on real property values assuming that a large inventory of buildings would increase the time period required for rents to adjust fully. Using standard cash flow analysis, it was shown that TRA may have reduced the value of investment property by as much as 20 percent in some markets. In addition, it was revealed that certain changes in tax policy could increase investment property values by between roughly 12 and 18 percent. It was found that removing passive loss restrictions, reducing the capital gains tax rate to 20 percent and shortening the recovery period or tax life of investment property to the period under pre-1986 rules could increase property values by between approximately 11 and 16 percent. Moreover, it was shown that if capitalization rates fall by 0.5 percent as a result of such tax policy changes, the total increase in property value could rise additionally by between 1 and 3 percent.

Cash flow analysis shows that certain changes in tax policy can increase the value of real property substantially. Rising real estate values, in turn, could increase the willingness of lenders to continue to underwrite real estate projects. The improved tax environment coupled with easier access to credit could substantially reduce the adjustment period required for the real estate sector to recover from the effects of TRA.

by

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TAX-DEFERRED SAVINGS AND FIRST-TIME HOMEBUYERS

The idea of using tax-deferred retirement savings for first-time home purchases has been around for several years among lawmakers. This year, liberalizing individual retirement accounts (IRAs) is back on the agendas of both Congress and the Administration. For the second year in a row, the President has proposed to waive a penalty tax on early IRA withdrawal for first-time home purchases. In Congress, bills allowing the use of IRA contributions for downpayment on a home have been reintroduced. While some people are convinced that some IRA-home-purchase bill will be passed this year, others are more pessimistic citing that the new pay-as-you-go budget process would make it more difficult for Congress to cut back existing programs to pay for a new venture.[1]

Restrictions on IRAs

Currently, individuals who are not covered by any pension plans are allowed to deduct IRA contributions of up to $2,000 a year from their ordinary income, regardless of their income level. Accumulated interest income from an IRA is tax-deferred until the IRA funds are withdrawn. Upon retirement, all distributions of funds and earnings from an IRA are fully taxable as ordinary income. Although the principal and interest in IRAs are only tax-deferred and not tax-free, IRAs would benefit enrollees whose marginal tax rates are lower during retirement years than during working years when contributions are made.

The Tax Reform Act of 1986 (TRA) reduced allowable IRA deductions for higher-income taxpayers if the taxpayers or their spouses are covered by their employers' retirement plans. The limits on deductible contributions are gradually phased out between adjusted gross income (AGI) of $25,000 and $35,000 for single taxpayers, and between $40,000 and $50,000 for married couples. The phase-out ranges are not indexed for inflation, and therefore fewer taxpayers are eligible for the deductions each year.

IRA funds do not make a good substitute for saving for purposes other than retirement. If IRA holders withdraw the funds prior to reaching age 59½, they are subject to a 10-percent penalty tax in addition to the regular federal and state income taxes. For example, an individual who pays federal, state and local taxes at a combined 35-percent rate would be left with only $550 from a $1,000 IRA withdrawal after paying the income tax and the 10-percent penalty tax.

Effects of TRA on IRA Contributions

After the curtailment of IRA eligibility following TRA, the rate of enrollment in IRA arrangements fell by about 40 percent in 1987. Two reasons can explain the sharp decline in IRA participation. First, IRA participation is commonly believed to be positively related to marginal tax rates.[2] Since TRA reduced the top marginal tax rate from 50 to 33 percent and thus reduced the benefit of deferring taxes, a decline in IRA participation was expected. Moreover, IRA deductibility was phased out for higher-income taxpayers and therefore further reduced the tax advantage of IRAs for those with AGIs in the phase-out ranges and beyond.

Table 1 shows the numbers of returns with IRA contributions and the respective amount of IRA contributions from 1980 to 1987, the last year data are available from the Internal Revenue Service. The proportion of the taxpayers contributing to IRAs fell dramatically from 15.1 percent in 1986 to 9.1 percent in 1987. In terms of the dollar amount, IRA contributions fell by 62 percent, from $37.8 billion in 1986 to $14.1 billion in 1987.

Table 1
IRA Contributions, 1980-87

		Individual Retirement Contributions	
Year	Total Returns	# of Returns	Amount ($ [illegible])
1980	93,902,469	2,564,421	3 [illegible]
1981	95,396,123	3,415,053	4, [illegible]
1982	95,337,432	12,010,038	28,2[illegible],852
1983	96,321,310	13,613,167	32,060,627
1984	99,438,708	15,232,856	35,374,424
1985	101,660,287	16,205,846	38,211,574
1986	103,045,170	15,535,531	37,758,393
1987	106,996,270	9,743,574	14,065,725

Source: Individual Income Tax Returns, Internal Revenue Service.

Table 2 shows that IRA contributions fell across all income levels after TRA. Because the

Table 2
IRA Contributions by AGI Levels
1986 and 1987

AGI ($ 000)	1986 # of Returns	1986 $ Amount	1987 # of Returns	1987 $ Amount
0-5	169,678	303,932	120,386	174,979
5-10	435,137	704,257	350,775	503,796
10-15	738,610	1,352,150	634,427	949,878
15-20	1,030,570	1,894,216	802,419	1,227,931
20-25	1,288,043	2,495,415	1,072,520	1,612,699
25-30	1,423,249	2,878,093	1,202,163	1,683,807
30-40	2,856,177	6,417,511	2,355,873	3,368,085
40-50	2,486,702	6,273,939	1,687,075	1,882,050
50-75	3,101,528	9,107,840	820,097	1,411,955
75-100	971,558	3,083,499	305,719	550,648
100-200	793,654	2,507,101	293,058	524,025
200-500	190,442	582,889	81,074	144,116
500-1,000	36,151	116,376	12,163	21,423
1,000+	14,032	41,174	5,825	10,333

Source: Individual Income Tax Returns, Internal Revenue Service.

phase-out of the deduction is tied to the AGI levels and the reduction in the marginal tax rate reduced tax incentive for individuals at higher-income levels more than those at lower-income levels, as expected, the declines in IRA participation and contributions were more pronounced at the higher-income levels. For example, in 1987, the number of enrollees with AGI between $25,000 and $50,000 fell about 22.4 percent, compared to 73.5 percent for those with AGI between $50,000 and $75,000.

In terms of the dollar amount of IRA contributions, the amount fell 55.4 percent for those enrollees with AGI between $25,000 and $50,000 and 84.5 percent for those with AGI between $50,000 and $75,000. Thus, the phase-out of IRA deductibility for higher-income taxpayers changed the distribution of IRA contributions by AGI levels considerably.

Table 3 compares the distribution of IRA contributions by showing the percent of dollar amounts of IRAs contributed by enrollees for each AGI level and also the cumulative percent of IRA contributions for individuals at each AGI level. In 1986, about 59 percent of IRA contributions came from enrollees with AGIs of $50,000 or less (two-thirds of IRA enrollees). In 1987, as much as 81 percent of IRA contributions came from enrollees with AGIs of $50,000 or less (84.4 percent of enrollees).

Table 3
IRA Distribution, 1986 and 1987

AGI ($ 000)	1986 % of Total $ Added to IRAs	1986 Cum %	1987 % of Total $ Added to IRAs	1987 Cum %
0-5	0.80	0.80	1.24	1.24
5-10	1.87	2.67	3.58	4.83
10-15	3.58	6.25	6.75	11.58
15-20	5.02	11.27	8.73	20.31
20-25	6.61	17.88	11.47	31.77
25-30	7.62	25.50	11.97	43.75
30-40	17.00	42.50	23.95	67.69
40-50	**16.62**	**59.11**	**13.38**	**81.07**
50-75	24.12	83.23	10.04	91.11
75-100	8.17	91.40	3.91	95.02
100-200	6.64	98.04	3.73	98.75
200-500	1.54	99.58	1.02	99.77
500-1,000	0.31	99.89	0.15	99.93
1,000+	0.11	100.00	0.07	100.00

Source: Individual Income Tax Returns, Internal Revenue Service.

IRAs as an Incentive for Saving

A major debate among economists about IRAs is whether IRAs create new saving or merely shift assets from taxable investments, such as money market mutual funds, into the tax-deferred IRAs. Some critics argue that IRAs are only an instrument to allow taxpayers to shuffle many of the assets in

their portfolios into IRAs to defer paying taxes and thus IRAs do not significantly create new saving. For example, Alan Auerbach, Professor of Economics at the University of Pennsylvania who recently joined the Joint Tax Committee to perform economic and revenue analyses, commented that no clear evidence exists that IRAs significantly increased saving during the period 1981 to 1986.[3]

If in fact IRA deposits merely represent a "reshuffling" of old saving into IRAs to minimize tax liabilities, they could cause a loss in Treasury revenue in the form of reduced tax revenue on interest income. Some economists believe that IRAs reduced national saving by reducing government saving (increasing the deficit from reduced tax revenue) with no offsetting increase in private saving between 1982 and 1986.[4]

Other economists, however, present evidence that IRAs had a net positive effect on new savings. Using a sophisticated econometric technique, Venti and Wise (1986, 1987, 1988) estimated that for every dollar being put in an IRA by an individual, most of it came from reduced consumption and reduced tax liability and less than 20 cents came from other taxable forms of saving. This implies that the new saving induced by IRA incentives outweighed the tax loss to the government.

Using the IRAs/University of Michigan taxpayer sample for income tax returns between 1980 and 1984, Feenberg and Skinner (1989) followed a group of families over the five-year period and monitored their assets portfolios. Their hypothesis is that if IRA contributions came from withdrawals from other taxable assets, the taxable asset income of IRA enrollees should have grown noticeably less than that for non-enrollees. In fact, they found the opposite result in that individuals who purchased IRAs in each year between 1982 and 1984 increased their asset holdings by more than those who did not purchase IRAs. Thus, they came to the same conclusion as Venti and Wise that IRAs represented new saving.

IRAs and Revenue Loss to the Treasury

The debate on the effect of IRAs on net saving has an important implication on the revenue loss of the IRA program. If taxpayers in fact shuffle proceeds from existing taxable accounts to the tax-deferred IRAs, revenue loss from forgone tax on interest will occur as a result of IRA incentives. However, if saving would not have occurred in the absence of the tax incentives of IRAs, i.e., if IRAs induce new saving, the Treasury would not lose any revenue from any forgone tax on interest since, without IRA tax incentives, no interest would exist to be taxed in the first place.

In a case where IRAs promote new saving, the deductibility of the principal of an IRA would not cause a permanent loss for the Treasury, rather only a short-term loss. That is, over the life of an IRA, say 30 years, no revenue loss would occur from allowing the contributions to be deductible as long as the taxpayer's marginal tax rate remains the same. The principal amount that is deductible up front will be taxed at a later date, by which time it will have grown considerably with interest. In effect, the government forgoes collection of the tax on the contribution up front and collects a larger amount of tax on a larger, compounded sum upon withdrawal at a later date.

Even if IRAs do not reduce the value over time of taxes collected by the Treasury, they shift the tax revenue from the present to the future and therefore represent a loss in each year's budget calculation. Some analysts argue that, in the long term, as the IRA program matures and more participants begin to withdraw funds from their IRAs, the deferred taxes will be paid and revenue collected will outweigh the amount deducted from new contributions and therefore IRAs will not be a revenue-loser over time.[5]

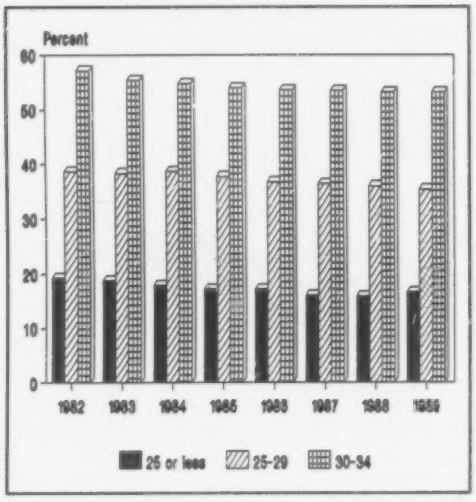
First-Time Homebuyers and Downpayment Constraint

The premise for tapping IRAs for home purchase is that first-time homebuyers have a difficult time saving for downpayments. As evidence, proponents for using IRAs for home purchase point to the declining homeownership rate in the United States, which peaked in 1980 with 65.6 percent of households being homeowners and fell to 63.9 percent in 1989. The decline, they argue, was even more dramatic among younger householders.[6]

Figure 1 shows Bureau of the Census data for the homeownership rates for young householders up to the age of 34.[7] For example, for those households in the 25-29 age group, 38.6 percent owned their own homes in 1982. By 1989, only 35.3 percent owned their homes. The same trend is evident for householders less than 25 years of age and for those between 30 to 34 years old, the age group most likely to be potential first-time homebuyers.

Not everyone agrees that the decline in the homeownership rate was caused by difficulty of saving for a downpayment for young households. Some analysts argue that homeownership rates fell

Figure 1
Homeownership Rates
34 Years Old or less, 1982-89



because households were simply making a rational investment and consumption choice. According to these analysts, as price appreciation slowed down and the tax benefits were reduced because of the drop in marginal tax rates, homeownership was viewed as less attractive than other types of investment. Therefore households may have preferred to rent rather than to own and to invest the potential downpayment in other investment assets.[8]

The notion that young renters have a difficult time saving for downpayments is reinforced by the 1986 Federal Reserve Board Survey of Consumer Finance. The survey represents 11.1 million renter households between the ages of 25 and 34. In an analysis by Denise DiPasquale (1989), 81.2 percent of those renters did not have the saving necessary to meet a 20-percent downpayment on the typical starter home while 64.3 percent of renters did not have the income to qualify for an 80 percent loan-to-value ratio mortgage. Only 11.5 percent of renter households had both the income and the savings that would be necessary to buy the typical starter home.

First-Time Homebuyers and IRAs

Evidence exists that potential first-time homebuyers did not participate heavily in tax-deferred saving programs. According to the Survey of Income and Program Participation in 1984, only 10.3 percent of households under the age of 35 had IRAs and only 8.5 percent of renter households had IRAs.[9] The figures improve for young renters with higher income. Data from the 1983 and 1986 Surveys of Consumer Finances also revealed that, for renters in the age of 25 to 34 earning at least $20,000, 20 percent had IRAs while 17.5 percent had 401(k) accounts.[10] Therefore IRAs may appear to provide little benefit to potential first-time homebuyers directly and thus lead some critics to argue that allowing penalty-free withdrawal from IRAs is "of no value to people of the lowest income."[11]

Others have a different view. They argue that the idea of using IRAs for home purchase is still beneficial to first-time homebuyers because IRAs could provide an incentive to potential homebuyers to start saving for a home by contributing to IRAs.[12] To accommodate young renters who do not have IRAs, some IRA proposals, such as the Bentsen-Roth bill, (S. 612), would permit IRA holders to withdraw their contributions for purchasing homes for their children and grandchildren as well as for themselves.

The President's IRA Proposal and Family Savings Account

The President's budget proposal sent to Congress in February would permit qualified first-time homebuyers to withdraw up to $10,000 from their IRAs without penalty. The price of the home must be no more than 110 percent of the community's median price. Although homebuyers would not incur the 10 percent penalty on early withdrawals, they would still owe income taxes on the sum withdrawn.

The President also proposed a saving program called the Family Saving Account. Taxpayers would be allowed non-deductible contributions of up to $2,500 annually. To qualify, a single person would have to earn less than $60,000 a year, $120,000 a year for a couple. The earnings of these accounts are tax-free if the principal is left in the account for more than seven years.

Penalty-Free IRA Proposals on the Hill

Several bills allowing penalty-free withdrawal from IRAs to purchase homes for first-time homebuyers have been introduced on the Hill this year. In the Senate, such bills have been introduced by Senator Donald W. Riegle, Jr., D-Mich., (S. 307) and Senators Lloyd Bentsen, D-Texas, and William V. Roth, Jr., R-Del. On the House side, bills that would waive a penalty tax for

early IRA withdrawal for a first-time home purchase have been introduced by Rep. Robert Matsui, D-Calif., (H.R. 1114) and Rep. Marge Roukema, R-N.J., (H.R. 1352). An identical bill to the Bentsen-Roth bill has been introduced by Reps. J.J. Pickle, D-Texas, and William Thomas, R-Calif, (H.R. 1406).

The Bentsen-Roth "Super IRA" Plan

With 75 cosponsors in the Senate, enough to override the President's veto if necessary, the Bentsen-Roth IRA bill introduced last month seems to have a better chance than any other IRA bills this year. The Bentsen-Roth bill is more elaborate than other IRA bills currently introduced in Congress. The bill would restore the tax deduction for IRAs; that is, the tax deduction would be extended to all taxpayers, regardless of income or whether or not they are covered by employers' retirement plans.

The bill would also give individuals an option to contribute into a new "back-loaded" or non-deductible IRA dubbed "Super IRA," which is similar to the President's tax-free Family Savings Account. The contribution to the new account would not be deductible, but, withdrawals of IRA contributions and earnings are tax-free after assets have been held for five years.

Under both the up-front and back-loaded plans, taxpayers would be permitted to make penalty-free withdrawals of IRA contributions before retirement for the purpose of a first-home purchase, education expenses and catastrophic medical expenses. The medical expenses incurred by a taxpayer or a dependent must exceed 7.5 percent of the taxpayer's AGI in order to qualify for a waiver in the penalty tax. IRA holders are allowed to withdraw the funds for first-time home purchase and education expenses for their children or grandchildren as well.

Taxpayers could opt to contribute up to $2,000 a year to either plan or a combination of the two. The $2,000 amount would be indexed for inflation, with minimum $500 adjustment. Unlike other IRA bills, this bill would allow taxable but penalty-free withdrawals from other pension plans as well. For example, funds from 401(k) and 403(b) plans, which are tax-deferred savings arrangements sponsored by employers, could be withdrawn without penalty to be used for the same purposes allowed for IRA withdrawal.

Cost of the Penalty-Free IRA Bills

The proposals to waive a penalty on IRA withdrawal for certain purposes would cause revenue loss from the penalty tax forgone. The cost of the President's proposal is estimated to be $440 million over five years.[13] The Joint Tax Committee on taxation is preparing a cost estimate of the Bentsen-Roth bill; however, estimates given by various sources are as low as several million dollars and as high as $15 billion to $20 billion over a five-year period.[14]

Conclusions

Both the Administration and Congress generally agree on liberalizing IRAs to permit penalty-free withdrawal from IRAs for the purchase of homes for first-time homebuyers. The Administration, however, has intended to keep retirement saving objectives separate from other policy goals. For example, the Administration refused to support bills to allow penalty-free IRA withdrawals for troops serving in the Persian Gulf and has opposed to the Bentsen-Roth Super IRA plan.[15] The reason first-home purchase is an exception to the goal of supporting retirement savings, the Administration argued, is that a home is viewed as an integral part of retirement assets.

The price tag of these IRA bills is also a concern for both the Administration and Congress. Given the pay-as-you-go approach in the new budget process, revenue-losing proposals must be offset by commensurate increases in revenues or cuts in other programs. Senator Bentsen promised that the Bentsen-Roth IRA bill would not leave the Finance Committee unless it is revenue-neutral. Both Senators Bentsen and Roth reportedly have come up with possible sources of revenue to pay for the plan although they would not reveal them until they have its cost estimate.

by

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Endnotes

[1] Lehman (1991).

[2] See, for example, Feenberg and Skinner (1989), Long (1988, 1990) and O'Neil and Thompson (1987).

[3] Testimony to the House Budget Committee on February 1990, see *Tax Notes*, Vol. 50, No. 11, March 18, 1991, p. 1301.

[4] See, for example, Burman, Cordes and Ozanne (1990).

[5] Ture and Entin (1989).

[6] See, for example, DiPasquale (1990).

[7] *Homeownership Trend in the 1980's* (1990).

[8] See, for example, Liscio (1990).

[9] DiPasquale (1990), p. 5.

[10] The figures are calculated from *1983 and 1986 Surveys of Consumer Finances*, Board of Governors of the Federal Reserve System, unpublished data, see Schwartz (1990).

[11] Henry J. Aaron, Director of Economic Research at the Brookings Institution was quoted in the *National Journal*, No. 11, March 16, 1991, p. 364.

[12] See, for example, DiPasquale (1990).

[13] *Budget of the United States Government: Fiscal Year 1992* (1991).

[14] The lower-end estimate, given by an anonymous Senate aide, was approximately $400 million over five years, see Lehman (1991). The upper-end estimate is provided by Richard A. Grafmeyer, Finance Committee minority tax council, to the members of the Employers Council on Flexible Compensation in March for the cost of Super IRA alone, see *Tax Notes*, Vol. 50, No. 11, March 18, 1991, p. 1187.

[15] Thomas Terry, Benefits Tax Counsel at the Treasury Department, said that the Bush Administration opposes the Super IRA plan at a meeting co-sponsored by the American Academy of Actuaries, the Conference of Actuaries in Public Practice and the Society of Actuaries on March 14, see *Tax Management Weekly Report*, Vol. 10, No. 11, March 18, 1991, p. 284.

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CHECKING THE NATION'S VITAL SIGNS:
Home Ownership Affordability Measures

In the first article of this series ("Checking the Nation's Vital Signs: NAR Housing Affordability Indices," *Real Estate Outlook*, March 1991), we looked at several instruments used by the NATIONAL ASSOCIATION OF REALTORS® to measure the affordability of home ownership to individual prospective home buyer households.

The affordability of home ownership to individual households evidenced in the NAR and other AIs has important implications for the affordability of housing markets. Other indices assess housing affordability from a market perspective; that is, what percentage of households within a market can afford the median-priced home (California Association of REALTORS® Housing Affordability Index)? or what percentage of homes can the median income household afford in a particular market (National Association of Home Builders Relative Affordability Index)?

The first section of this article will briefly revisit the NAR Affordability Indices and highlight how State Associations and Local Boards of REALTORS® have tailored the NAR methodology of computing home ownership affordability to the special conditions encountered by the prospective home buyers there.

The second section will look at market indices of home ownership affordability. While not technically indices, one completed and one forthcoming study examine home ownership affordability from a market perspective by estimating the share of households that can afford a home. The second section will look at these studies as well.

Measures of Affordability of Home Ownership to Individual Households Using NAR AI Approach

The NATIONAL ASSOCIATION OF REALTORS® Affordability Indices (AIs) measure the ability of the median income family to qualify -- based on the share of its pretax income required to meet the payment -- for a mortgage loan on the median-priced home. NAR calculates its AIs for the nation, the four Census regions -- Northeast, South, Midwest, and West -- and select metropolitan areas. Home prices for NAR's AIs are derived primarily from selected metropolitan areas, making an index based on them less meaningful to some State Associations and Local Boards of REALTORS®. Home prices and median incomes used in the NAR AIs may not accurately reflect the market conditions of their respective areas.

Many State Associations and Local Boards of REALTORS® have adopted the NAR formula:

$$AI = \frac{\text{Median Family Income}}{\text{Qualifying Income}} \times 100$$

A value of 100 or more means the median income family is financially qualified to obtain a mortgage on the median-priced home, based on a 25 percent maximum principal and interest payment-to-income convention.

The chief difference between the NAR AIs and individual State Associations' and Local Boards' AIs is that the median-priced home and the median family income reflect economic conditions that are closer to home, and give a truer picture of the affordability of home ownership for their state, or even specific areas within their state.

Tailoring the index also allows some comparison between the market conditions of the localities to regional and national conditions. The relationship, e.g, higher or lower, between the NAR AI and a state or local index is a good indicator of the affordability of a local market relative to the nation as a whole. Comparison of *actual magnitudes* of the NAR AIs with others, however, should be done cautiously. For in many cases, sampling procedures for home sales differ among the NAR AIs and the affordability indices of the State Associations and Local Boards. This difference in sampling procedure often results in a different mix of homes sold. The characteristics of the median-priced home from the NAR sample, used in calculating qualifying income, may differ significantly from the characteristics of the median-priced home used in the calculations of other indices.

The Kentucky Association of REALTORS® Housing Affordability Index (KHAI) and First-Time Home Buyer Affordability Index (FHAI) parallel the NAR Indices for all home buyers combined and first-time home buyers, respectively, tailored to the unique conditions of a largely rural state.[1] (See Exhibit 1).

For the fourth quarter 1989, the KHAI is nearly one-third higher than NAR's Composite AI for the United States (average of October, November, December 1990) -- 141 versus 108 -- owing to

relatively inexpensive housing coupled with good incomes. (See Table 1). Unfortunately, the KHAI and FHAI are currently unavailable as ongoing series, so comparison to previous quarters is not possible.

Table 1

HOUSING AFFORDABILITY INDICES:
NAR AND STATE ASSOCIATIONS OF REALTORS®

	4th Qtr. 1989	3rd Qtr. 1990	4th Qtr. 1990
NATIONAL ASSOCIATION OF REALTORS®	108	107.6	114.9
State Association Indices:			
Indiana	157	NA	NA
Kentucky	141	NA	NA
New York State	98	95	99.9
Wisconsin	145.1	146.1	154

The New York State Association of REALTORS® (NYSAR) also calculates an Affordability Index using the NAR methodology. (See Exhibit 1). Rising incomes, stable home prices, and declining interest rates contributed to increases in the fourth quarter 1990 NYSAR affordability index over the previous quarter (99.9 compared to 95), and over the fourth quarter of 1989 (99.9 compared to 98). A comparison of the NYSAR Index for fourth quarter 1990 of 99.9 to the NAR Composite Index for the United States of 114.9 suggests that New York is an expensive housing market relative to the nation as a whole. (See Table 1). Many of the Local Boards in New York, including Rochester, Westchester County, Ithaca, Buffalo, and Albany, calculate their own affordability indices based on the NAR methodology.

The Indiana Association of REALTORS® has a state index (IHAI) and indices reflecting affordability conditions in each of 19 major regions within the state. The association also computes a first-time home buyer index for the state as a whole. As in many markets, affordability in Indiana has been increasing recently, and the affordability index stood at 160 during the first quarter of 1990, up from 157 during fourth quarter 1989. A comparison of the fourth quarter 1989 IHAI to the NAR AI of 108 reveals that, relative to the nation, Indiana is quite affordable. (See Table 1).

The Wisconsin REALTORS® Association (WRA) calculates an index for the state as a whole and eight districts within the state. While the same caveats apply regarding comparability, Wisconsin with a fourth quarter 1990 index of 154 is an affordable state. (See Table 1). Like many housing markets, stable home prices and declining interest rates have contributed to a rising HAI.

The Florida Association of REALTORS® calculates a housing affordability index for 20 metropolitan areas. The most affordable metropolitan area during fourth quarter 1990 was Pensacola, with an affordability index of 161.6. The least affordable metropolitan area was Naples, with an affordability index of 79.8. The Association is currently developing an index for the whole state.

The CALIFORNIA ASSOCIATION OF REALTORS® (CAR) has developed an affordability index using a different approach from the NAR AI. The CAR uses a "market approach" for developing its HAI, which will be discussed below.

Limitations of NAR-Type Indices

The State Association and Local Board indices are subject to the same limitations as the NAR AIs. The most common criticism relates to the 20 percent downpayment assumption of the AIs for all home buyers combined, and the 10 percent downpayment assumption of the first-time home buyer indices. The *State of the Nation's Housing: 1990* (Joint Center for Housing Studies of Harvard University) reported that 81 percent of renters between the ages of 25 and 34 have insufficient wealth to make a 20 percent downpayment on a starter home; moreover, 70 percent are unable to make even a 10 percent downpayment.

The affordability indices likewise do not address the affordability of operating the home once it has been purchased. This may be an important dimension of home ownership affordability in light of the unprecedented numbers of home owners reverting to renting.[2]

Market Measures of Home Ownership Affordability

The ability of individual prospective home buyers to qualify for mortgages -- measured by NAR-type indices -- forms the basis of the two types of market measures of home ownership affordability. The first type of market measure estimates the *share of households* that can afford a home within a particular market. The second type of market measure estimates the *share of homes* within a market that the typical household can afford.

Share of Households Approach

California Association of REALTORS®. The California Association of REALTORS® Housing Affordability Indices (HAIs) use the share of households approach. Like the measures discussed so far, CAR uses the median-priced home for the state of California as a whole and seven major regions within the state. (See Exhibit 2). The general formula for the HAI is as follows.:

$$\text{CAR HAI} = \frac{\text{Number of Households Which Can Qualify For Mortgage on Home at Median Price or Higher}}{\text{Total Households}}$$

The higher the HAI, the greater the share of households which can qualify for a mortgage on the median-priced (or higher-priced) home, and the more affordable the market.

CAR's indices assume a monthly mortgage payment of not more than 30 percent of monthly household income, in contrast to the 25 percent convention used by the other indices. The mortgage principal and interest payment is based on 30 year mortgage amortized at the Federal Home Loan Bank Board's average interest rate on fixed- and adjustable-rate loans closed on existing homes. Unlike the indices discussed so far, the monthly mortgage payments include property taxes and hazard insurance as well as mortgage principal and interest.

The CAR Housing Affordability Index looks at the qualifying income relative to the distribution of households by income. While the distribution of incomes is also important to the NAR Indices, NAR looks at only one point on the income distribution - the median - to arrive at the NAR AI. In contrast, CAR looks at all incomes at or above the qualifying income. In other words, the share of households with incomes equal to or greater than qualifying income is the CAR HAI.[3]

Affordability generally improved between 1989 and 1990 in California, owing to a reversal in house price rises above income gains. In 1989, only 17 percent of California households could purchase the median-priced home; by 1990, just over one-fifth could. While more households are currently able to afford a home in California than in the past several years, prospective home buyers in California are still at a relative disadvantage. This one-fifth of California households compares to one-half of the households in the United States which could purchase the national median-priced home.

Affordability also improved in five California regions between 1989 and 1990. In Los Angeles, Orange County, San Diego, San Francisco, and Ventura, an additional two to four percent of households can afford to purchase the median-priced house than could in 1989. The share of households that could purchase remained unchanged in Riverside/San Bernardino, and declined from 38 to 31 percent in Sacramento.[4]

Joint Center for Housing Studies of Harvard University. The Joint Center for Housing Studies of Harvard University also estimates the share of households that can afford to purchase a home. In particular, the Joint Center in its *State of the Nation's Housing: 1990* estimated the share of young renting households in the United States that could qualify for financing on a median-priced, starter home. The Joint Center calculates the 1986

share using the most recent year available of the Federal Reserve Survey of Consumer Finances, the dataset used. (Since an estimate is only available for 1986, this measure cannot be used to examine trends in affordability).

Financing costs, terms, and household income assumptions are very similar to those of the indices discussed. (See Exhibit 2). Like the CAR, the Joint Center's mortgage payment includes property taxes and hazard insurance. The largest departure from the other AIs is the Joint Center's house price. While the other indices use prices recorded when the sales contract is signed or when the loan is closed, the Joint Center uses "standardized" home prices. A standardized price is the price of a representative home in a given year, indexed for house price inflation. In this case, the home has the characteristics, e.g., number of rooms, square feet, etc. of the median-valued home purchased by a first-time home buyer aged 25 to 29 in 1977. The index used for adjusting the price is the Census Bureau's C-27 Constant Quality Home Price Index. This price index is designed to hold constant 10 characteristics of new homes sold. These characteristics are floor area, number of stories, number of bathrooms, presence of central air conditioning, type of parking facility, type of foundation, geographic sub-division (12 sub-divisions based on nine Census divisions -- 3 of them divided into 2 parts), location within or outside of metropolitan area, lot size, and the presence of one or more fireplaces.

The Joint Center's mortgage qualification criteria are more comprehensive than the other indices, and more closely reflect those criteria established by the secondary mortgage market. The only mortgage qualification criteria used in the indices discussed so far is that the mortgage payment cannot exceed a certain share of prospective borrower income. The Joint Center also uses this criteria. For a mortgage with a 10 percent downpayment, the required mortgage payment cannot exceed one-quarter of borrower income; for a mortgage with a 20 percent downpayment, the mortgage payment cannot exceed 28 percent of borrower income. In addition, the secondary mortgage market also requires a prospective borrower to have sufficient wealth to meet the downpayment without incurring debt. The Joint Center uses data on household wealth from the Survey of Consumer Finances to determine whether a household meets this criteria, rather than *assume* a prospective borrower has a 10 to 20 percent downpayment as the indices discussed thus far do.

Only small shares of renters can afford a home, according to the Joint Center. Comparison of household wealth and income in 1986 to the upfront cash costs ($15,652) and income needed to qualify for a mortgage ($24,445 minimum assuming a 30 year, fixed-rate mortgage of 9.8 percent with 20 percent downpayment) indicates that only 13.6 percent of the 29 million renting households in the U.S. could purchase a starter home. Of the 11 million renters aged 25 to 34 in 1986, only 12 percent had both the necessary income and wealth. Lowering the downpayment to 10 percent modestly raises the share of young renters who can qualify to 14.5 percent.[5]

The U.S. Bureau of the Census Study. The U.S. Bureau of the Census is currently developing its own estimate of the share of qualified households for the United States and each of the four Census regions. The results of the study are expected to be available in the first-half of 1991. The Census Bureau considers a household's ability to qualify for financing on a median-priced home, a modestly-priced home, and the value of a new home.[6] Like the Joint Center which uses individual household data, the Census Bureau uses data from its 1987 Survey of Income and Program Participation.

The financing costs, terms, and income assumptions are similar to the other measures. (See Exhibit 2). The Census Bureau uses a 28 percent maximum principal, interest, taxes and insurance (PITI)-to-income ratio for conventionally-financed loans. For FHA-insured mortgages, the maximum PITI-to-income is 29 percent.

The Census Bureau study considers other secondary mortgage market criteria as well. Like the Joint Center, the Census Bureau employs household asset and wealth data to determine, rather than assume, the household's ability to meet the required downpayment and closing costs.

The secondary mortgage market also restricts the amount of debt a prospective borrower is allowed to hold. Even if the prospective borrower's required PITI is within the established limits and the borrower has the wealth for the downpayment, a prospective borrower's total debt cannot exceed 8 percent of monthly income in order to qualify for a conventional mortgage. For an FHA-insured mortgage, a borrower's debt cannot exceed 12 percent of income. Unlike the other indices and Joint Center study, the Census Bureau uses

household data to determine if a household meets this debt-restriction criteria.

The Census Bureau's study will not investigate the impact of adjustable-rate mortgages (ARMs) on the nation's housing affordability situation. NAR's ARM AIs are always higher than its fixed-rate mortgage indices. This unchanging relationship implies that the median income household has a better chance of qualifying for an ARM than a fixed-rate mortgage. Despite this, preliminary findings suggest that in recent years ARMs have had little impact on increasing the share of households which could afford to purchase a home. ARMs do lower the initial monthly mortgage payment, thereby decreasing the qualifying income needed by prospective borrowers. However, they do little to assist home buyers that do not have the wealth necessary for the downpayment. According to some economists, the wealth requirement is more restrictive than the income requirement. Thus, the preliminary findings of the Census Bureau are hardly surprising.[7]

Share of Homes Approach

Like the other measures discussed in this section, the National Association of Home Builders Relative Affordability Index is a market measure of home ownership affordability. Unlike the others, it is an example of the second type of market measure of home ownership affordability -- the share of homes type.

The National Association of Home Builders (NAHB) Relative Affordability Index (RAI) is the percentage of all new and existing home sales in a market on which the median income household can qualify for a mortgage.

$$\text{NAHB } RAI_{market} = \frac{\text{New and Existing Home Sales On Which Median Income Household Can Qualify for Mortgage}}{\text{Total New and Existing Home Sales}}$$

The higher the RAI, the greater the share of homes on which the median income household can qualify for a mortgage, and the more affordable is the local market. Like many of the indices discussed so far, this qualification depends only on the required mortgage payment not exceeding a certain percentage of the prospective borrower's pretax income.

The maximum-priced home that a household can afford is the basis for the RAI. The RAIs assume that a household can qualify for a mortgage on a home with a price up to 2.6 times its income, based on a 25 percent maximum mortgage payment-to-income and a 30 year, 10 percent fixed-rate mortgage with a 10 percent downpayment.[8]

The distribution of home prices in a housing market is essential to the NAHB RAI. NAHB looks at the share of homes that sold at or below the maximum house price which the median income household can afford. This share of homes determines the affordability of a housing market.[9] (See Exhibit 2).

NAHB calculates the Relative Affordability Index for more than 200 local housing markets. A local market is considered affordable if a median income household can qualify for a mortgage on at least one-half of homes sold during a given period.

Comparing the RAIs across markets indicates the relative affordability of home ownership in different markets during a given time period. For example, in 1990, the least affordable market was Bergen-Passaic, NJ with a 15.4 affordability index. In other words, the median income household in the area could only afford to purchase 15.4 percent of homes sold there during 1990. In sharp contrast, the median income household in Oklahoma City, OK could qualify for financing on 83.9 percent of the homes sold there during 1990.[10]

Comparing the RAIs for a given market across time periods illustrates affordability trends in a given market. In Bergen-Passaic, like most areas in the Northeast, affordability improved between 1989 and 1990. In 1989, only 13.3 percent of homes sold were within reach of the median-income household; in 1990, the median income household could afford 15.4 percent of homes sold. Affordability improved in Oklahoma City as well. While the median income household could afford 81.1 percent of 1989 area home sales, it could afford 83.9 percent in 1990.[11]

The Up-Side and the Down-Side of the Market Measures

The limitations of the market measures of home ownership affordability mirror the limitations of the measures for individual prospective home buyers. This is not surprising given that the ability of individual home buyer families to qualify for mortgages forms the nucleus of market measures. Neither CAR nor NAHB measures the ability of the household to meet the downpayment and closing

costs; rather, they assume the prospective home buyer has sufficient resources to make a 10 or 20 percent downpayment. The Joint Center and the Census Bureau studies surmount this shortcoming by using household asset and wealth data to determine whether a household can overcome these upfront obstacles to home ownership.

All of the measures rely on the ability of the household to secure financing similar to that assumed, which is probably not difficult as long as the household is able to make a 10 to 20 percent equity downpayment. Finally, none of the market measures discussed in this section addresses the affordability of operating the home once it has been purchased.[12]

Conclusions

Home ownership is an important source of wealth for most of the nation's households, and an important source of security after retirement. Affordable owner-housing, then, is important to continued wealth accumulation. For owner-housing to remain affordable, incomes must keep pace with housing prices and there must be an adequate supply of mortgage capital available to prospective home buyers. However, for many households, mortgage qualification criteria prevent them from accumulating wealth and saving for the future through home ownership.

An underlying theme of each of the measures discussed in this series is that a household's ability to qualify for a mortgage is nearly synonymous with its ability to afford a house. NAR's *Homebuying and Selling Process: 1989* reports that 93 percent of its survey respondents financed their home purchase, providing validity to this assertion. Many of the affordability measures only consider one qualifying ratio -- that the necessary mortgage payment does not exceed the maximum percentage allowed under secondary mortgage market guidelines.

Mortgage qualification also depends on other criteria. An important criteria not considered by many of the measures is the household's ability to meet the downpayment and closing costs, without incurring debt to do so. The Joint Center and Census Bureau use household wealth data and compare it to the upfront cash costs to determine whether a household can meet the downpayment. Another important criteria not considered by the measures is the maximum total allowable debt. However, the Census Bureau study includes this criteria in its estimation of households which can qualify for mortgages. The restriction on the amount of debt aims to ensure that a household will be able to meet the ongoing costs of home ownership.

Measures of home ownership affordability to individual prospective home buyers are the basis of market measures of home ownership affordability. Any limitations or inadequacies of the individual measures apply to market measures as well. An accurate assessment of the "scope" of a perceived housing affordability problem and the appropriate treatment depends on a proper assessment of affordability to individual prospective home buyers.

Although the measures are different, many of them substantiate the persistence of affordability problems, despite fairly stable home prices, and declining mortgage rates in recent years. The NAR First-Time Home Buyer Affordability Index for the United States stood at 74.2 in 1989, indicating the median income prospective first-time home buyer had less than three-quarters of the income needed to qualify for a mortgage on a starter home. The California Association of REALTORS® Index stood at 20 percent in 1990, indicating that only one-fifth of Californians had the income to qualify for a mortgage on the median-priced, single-family detached home. The Joint Center finds that, in 1986, only 12 to 15 percent of young renting households had the income and wealth to qualify for mortgages. The National Association of Home Builders Relative Affordability Index (overall average for 217 local markets) is 55.5, indicating that the median-income prospective home buyer could qualify for financing on just over one-half of homes sold during 1990.

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Endnotes

1 McIntosh (1990) developed the indices for the Kentucky Association of REALTORS®. The indices are currently available only for the fourth quarter of 1989.

2 See Fitzroy (forthcoming).

3 See California Association of REALTORS® (December 1989).

4 See California Association of REALTORS® (February 1991).

[5] See *The State of the Nation's Housing: 1990*, pp. 15-16.

[6] U.S. Bureau of the Census (1990) defines a "modestly" priced home as the value of a new or existing owner-occupied unit at the upper limit of the first quartile (lower one-quarter) of the cases in each region, from its Survey of Income and Program Participation. It defines the value of a new home as the median value of new single-family home sales for the first and second quarter of 1988, from its Survey of Construction.

[7] See, for example, Linneman and Wachter (1989).

[8] See Megbolugbe (1991).

[9] Unlike many of the affordability measures which use NAR's prices for existing, single-family homes, NAHB's home price data are from Dataman Information Services, which records transactions prices on both new and existing homes. In addition to sales by REALTORS®, Dataman captures sales by other real estate agents, home owners, and others.

[10] See Megbolugbe (1991).

[11] See Megbolugbe (1990 and 1991).

[12] In a separate measure from the one discussed, the Joint Center for Housing Studies of Harvard University (1990) calculates an after-tax cash cost of home ownership. The after-tax cash costs, which include mortgage principal, interest, taxes, hazard insurance, fuel, utilities, and maintenance, provide a rather comprehensive measure of the costs of operating the home once purchased.

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EXHIBIT 1
INDIVIDUAL HOMEOWNERSHIP AFFORDABILITY INDICES

Index (Coverage)	Objective*	Home Price	Mortgage Rate**	Mortgage Term	Down Payment	Income	Ratio of Mortgage Payment*** to Income	Years Available
Kentucky Association of REALTORS® Composite Affordability (Kentucky; six regions; select areas within each region)	Can family with median income qualify for financing on median-priced home?	Median-priced, existing single-family home from 19 MLS in Kentucky	Average interest rate on FRMs and ARMs on loans closed on existing homes; current, effective rate; from Federal Home Loan Bank Board	30 yrs.	20%	Median family income, from HUD	Cannot exceed 25%	Fourth quarter 1989; monthly Oct.-Dec. 1989******
Kentucky Association of REALTORS® First-time Homebuyer Affordability (Same as above)	Can potential first-time home buyer family with median income qualify for financing on median-priced starter home?	85% of above	Above rate plus 0.25% for private mortgage insurance (PMI)	30 yrs.	10%	Median income of renting families, ages mid-20s to mid-40s; from HUD's Office of Economic Affairs	Same as above	Same as above
New York State Association of REALTORS® Fixed Rate Mortgage Affordability (New York State)	Can family with median income qualify for financing on median-priced home?	Median-priced, existing, single-family home; from over 40 local boards of REALTORS® in NY	Current, effective mortgage on FRMS; from HSH Associates****	30 yrs.	20%	Median family income; from CACI*****	Cannot exceed 25% (pmt does not include property taxes and insurance)	Quarterly 1980 forward

* A household's ability to qualify depends only on the required mortgage payment not exceeding the percentages of income in column 8.
** Effective rate includes amortized fees and loan points.
*** Mortgage principal and interest payment is calculated from home price, mortgage rate, term and loan-to-value (LTV). Neither the Kentucky nor the New York State Association of REALTORS® includes property taxes and hazard insurance in the mortgage payment.
**** HSH Associates is a private consulting firm which surveys some 2,000 mortgage lenders each week.
***** CACI is an international professional and high technology services organization, whose services include provision of demographic information for U.S. households.
****** Not currently published as an ongoing series like the NAR AIs.

EXHIBIT 2
MARKET MEASURES

Index/ Measure (Coverage)	Objective**	Home Price	Mortgage Rate***	Mortgage Term	Down Payment	Income	Ratio of Mortgage Payment-***** to Income	Years Available
CAR Housing Affordability Index (California; 7 major regions)	What share of households can qualify for financing on the median-priced home?	Median-priced, existing, single-family home; from 74 Boards of REALTORS® and Multiple Listing Services	Average interest rate on FRMs and ARMs on loans closed on existing homes; current, effective rate; from the Federal Home Loan Bank Board.	30 yrs.	20%	Distribution of households by income; since 1988, from National Planning Data Corporation****	Cannot exceed 30%	California Annually 1979 forward; monthly 1986 forward; Regional Annually 1984 forward; monthly 1986 forward
Joint Center for Housing Studies of Harvard University Study* (U.S.)	What share of renting households (and young renting households) can qualify for financing on the starter home?	Median value of house purchased by first-time homebuyer aged 25 to 29 in 1977, from American Housing Survey indexed by C-27 Constant Quality Home Price Index; from Bureau of Census' Construction Reports	Nominal rate on fixed-rate mortgages (amortized loan fees and points are not included); from Federal Home Loan Bank Board	30 yrs.	20%	Income for each housheold in Survey of Consumer Finances	Cannot exceed 28 (25) percent for 80% (90%) LTV	1986 only
U.S. Bureau of the Census Study* (U.S., 4 Census regions)	What share of renting households can qualify for financing on a starter home?	Median-priced home, from SIPP; Modestly-priced home, from SIPP; value of new home, from Census' Survey of Construction	Conventional loans, contract interest rate on loans closed; from Federal Home Finance Board's Monthly Interest Rate survey; FHA-insured loans, interest rates on loans closed with FHA insurance, from Federal Housing Administration	30 yrs.	Min. 5% for both conventional and FHA-loans	Income for each household in SIPP	Convention loans, cannot exceed 28%;- FHA-insured loans, cannot exceed 29 %	1987 only; Forthcoming study
NAHB(over 200 metropolitan areas)	On what share of homes sold could a median-income family have qualified for financing?	Existing and new, single-family homes; data from Dataman Information Services	Nominal rate on fixed-rate mortgages (amortized loan fees and points are not included); typical prevailing rate assumed	30 yrs.	10%	Median family income; from U.S. Department of Housing and Urban Development	Cannot exceed 25%	Annually and quarterly 1990 forward

* These are not technically indices but one-time measures. The household data for the studies are the Federal Reserve's 1986 Survey of Consumer Finances (Joint Center's) and the U.S. Bureau of the Census' Survey of Income and Program Participation (SIPP), 1987 Panel, Wave 4 (Census Bureau).

** For the CAR and NAHB indices, a household's ability to qualify for a mortgage depends only the required mortgage payment not exceeding the percentages of income in column 8. The Joint Center and the Census Bureau use more extensive qualification criteria, which more accurately represents secondary mortgage market requirements.

*** Effective rate includes amortized fees and loan points.

**** National Planning Data Corporation is a private company specializing in demographic research.

***** Mortgage principal and interest payment is calculated from home price, mortgage rate, term and loan-to-value (LTV). Each market measure, except for NAHB, includes

U.S. Economic Outlook: April 1991

Quarterly figures are seasonally adjusted annual rates

	90.3	90.4	91.1	91.2	91.3	91.4	92.1	92.2	1989	1990	1991	1992	1993
U.S. Economy													
Annual Growth Rate													
Real GNP	1.4	-1.6	-2.7	0.3	3.0	2.9	2.9	3.2	2.5	1.0	-0.2	2.9	2.8
Industrial Production	4.0	-7.2	-9.1	-4.4	1.8	3.7	3.1	3.4	2.6	1.0	-3.4	3.1	5.0
Civilian Employment	-1.3	-0.9	-2.6	-1.2	0.8	0.9	1.1	1.5	2.0	0.5	-1.0	1.1	1.4
GNP Inflation Index	3.7	2.8	3.8	2.7	3.2	2.8	3.4	3.0	4.1	4.1	3.3	3.1	3.1
Consumer Prices	6.9	7.0	3.7	2.2	3.8	[illegible]	3.3	3.3	4.8	5.4	4.4	3.4	3.5
Value of the U.S. Dollar	-20.7	-19.0	7.6	26.2	2.5	[illegible]	3.7	3.4	6.2	-9.6	-0.3	4.6	2.4
Percent													
Mfg. Capacity Utilization	82.9	80.8	78.2	77.2	77.3	[illegible]7	78.0	78.4	83.9	82.3	77.6	79.0	82.0
Civilian Unemployment	5.6	5.9	6.5	6.9	6.8	6.8	6.7	6.5	5.3	5.5	6.8	6.4	5.9
Percent of GNP													
Federal Tax Receipts	20.4	20.4	20.5	20.4	20.5	20.6	20.7	20.7	20.2	20.3	20.5	20.7	20.7
Federal Expenditures	23.1	23.7	21.6	24.7	24.4	24.1	24.3	24.1	22.8	23.3	23.7	24.0	23.3
Federal Budget Deficit	-2.6	-3.3	-1.0	-4.2	-3.9	-3.6	-3.6	-3.3	-2.6	-3.0	-3.2	-3.2	-2.6
Interest Rates, Percent													
Federal Funds Rate	8.2	7.7	6.4	6.1	6.0	6.1	6.2	6.3	9.2	8.1	6.2	6.2	6.3
3-Month T-Bill Rate	7.5	7.0	6.0	6.0	5.8	5.8	5.8	5.8	8.1	7.5	5.9	5.8	5.8
Prime Rate	10.0	10.0	9.2	8.9	8.8	8.5	8.6	8.5	10.9	10.0	8.8	8.5	8.4
Discount Rate	7.0	6.9	6.2	5.9	5.8	5.8	5.7	5.7	6.9	7.0	5.9	5.7	5.7
Corporate AAA Bond Yield	9.4	9.3	8.9	8.9	8.7	8.6	8.5	8.4	9.3	9.3	8.8	8.4	8.1
30-Year Government Bond Yield	8.6	8.5	8.2	8.1	8.0	8.0	7.9	7.9	8.4	8.6	8.1	7.8	7.6
Mortgage Rates, Percent													
30-Year Fixed Rate	10.1	10.0	9.5	9.3	9.1	9.0	8.9	8.9	10.3	10.1	9.2	8.9	8.8
1-Year Adjustable	8.4	8.1	7.8	7.5	7.4	7.4	7.4	7.5	9.3	8.4	7.5	7.5	7.5
Home Sales & Starts													
Thousands													
Total Single-Family Sales	4,127	3,879	3,764	3,918	4,143	4,268	4,424	4,473	4,442	4,179	4,023	4,501	4,666
(Single-family resales plus 97% of single-family starts)													
Existing Single-Family Sales	3,297	3,117	3,062	3,135	3,270	3,384	3,492	3,524	3,467	3,305	3,213	3,546	3,676
New Single-Family Sales	523	468	454	502	529	565	580	599	654	532	513	601	637
Housing Starts	1,131	1,042	933	1,021	1,128	1,140	1,213	1,254	1,381	1,203	1,055	1,266	1,344
Single-Family Units	856	786	724	808	900	911	960	978	1,005	901	836	985	1,020
Multi-Family Units	274	256	209	213	228	229	253	277	376	302	220	281	323
2-4 Family Units	32	31	25	26	28	28	31	33	56	37	27	34	39
5+ Family Units	242	225	184	187	201	201	222	243	320	264	193	247	284
Mobile Homes Shipped	186	178	185	205	231	236	241	244	199	188	214	245	244
Percent change -- Year Ago													
Total Single-Family Sales	-6.5	-13.8	-15.9	-7.4	0.4	10.0	17.5	14.1	-4.4	-5.9	-3.7	11.9	3.7
Existing Single-Family Sales	-4.3	-11.9	-11.1	-6.8	-0.8	8.6	14.1	12.4	-3.6	-4.7	-2.8	10.4	3.7
New Single-Family Sales	-25.2	-28.2	-23.9	-6.9	1.2	20.7	27.7	19.3	-3.3	-18.6	-3.6	17.3	6.0
Housing Starts	-16.1	-22.9	-34.9	-15.2	-0.2	9.4	30.1	22.9	-7.2	-12.9	-12.2	19.9	6.1
Single-Family Units	-14.6	-20.9	-32.0	-9.8	5.1	15.8	32.7	21.0	-7.2	-10.4	-7.2	17.8	3.6
Multi-Family Units	-20.6	-28.4	-43.4	-30.8	-16.7	-10.5	21.0	29.9	-7.2	-19.7	-27.1	28.0	14.8
2-4 Family Units	-43.2	-42.2	-41.2	-40.5	-13.6	-10.5	21.0	29.9	-5.1	-32.8	-28.7	28.0	14.8
5+ Family Units	-16.2	-26.0	-43.7	-29.3	-17.1	-10.5	21.0	29.9	-7.6	-17.4	-26.9	28.0	14.8
Median Home Prices													
Thousands of Dollars													
Existing Home Prices	96.6	92.2	95.3	95.8	96.5	97.8	99.8	101.3	92.9	95.2	96.3	101.9	106.9
New Home Prices	116.7	122.0	124.5	125.3	126.4	128.6	130.5	132.4	120.4	122.3	126.2	133.1	139.8
Percent Change - Year Ago													
Existing Home Prices	1.7	-0.5	-0.2	-0.8	-0.1	6.1	4.8	5.7	4.2	2.4	1.2	5.7	5.0
New Home Prices	-2.5	-2.0	0.6	-1.1	8.3	5.4	4.9	5.7	6.2	1.6	3.2	5.5	5.0

Forecast produced using Laurence H. Meyer & Associates' model of the U.S. economy.
Assumptions and simulations by Dr. John Tuccillo, Robert Barr and Kimberly Martin.

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